

What Is Claimed Is:

1. A pneumatic agricultural or industrial tire comprising a casing and a rubber tread disposed radially outwardly of the casing, the tread having an inner tread and a plurality of tread lugs projecting radially from the inner tread, said casing having
5 at least one component, said component comprising textile cord and a rubber composition in contact with said textile cord, said rubber composition comprising

100 parts by weight of at least one diene based elastomer, including from about 75 to about 15 parts by weight of polybutadiene and about 25 to about 85 parts by weight of at least one additional diene based elastomer selected from the group
10 consisting of styrene-butadiene rubber, synthetic polyisoprene and natural polyisoprene;

about 0.1 to about 8 parts by weight of at least one accelerator selected from benzothiazoles and dithiophosphates and exclusive of sulfenamides;

about 1 to about 15 parts by weight of at least one resin selected from phenol-
15 formaldehyde resins, aliphatic cyclic hydrocarbon resins, and aromatic hydrocarbon resin;

about 10 to about 150 parts by weight of a filler selected from the group consisting of carbon black, silica, and starch/plasticizer composite filler; and

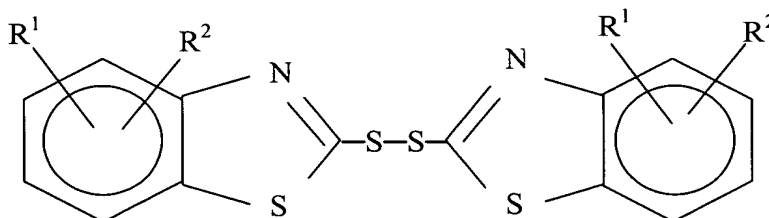
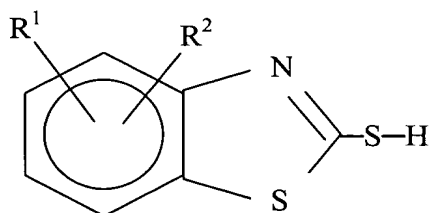
about 0.3 to about 3 parts by weight of sulfur;

20 wherein each lug has a width in a range of from 2 cm to 10 cm and length in a range of from 2 cm to 60 cm, and a height in a range of from 2 cm to 10 cm, and wherein the tread has a net-to-gross ratio in a range of from about 15 to about 40 percent as measured around the entire 360° circumference of a normally inflated and normally loaded tire contacting a flat hard surface.

25 2. The pneumatic agricultural or industrial tire of claim 1, wherein said at least one resin is selected from phenol-formaldehyde resins and aliphatic cyclic hydrocarbon resins.

30 3. The pneumatic agricultural or industrial tire of claim 1, wherein said dithiophosphate accelerator is selected from the group consisting of thioperoxydiphosphates, zinc phosphorodithioates, and basic zinc phosphorodithioates.

4. The pneumatic agricultural or industrial tire of claim 1, wherein said at least one benzothiazole accelerator is selected from compounds having the following formulas



where R^1 and R^2 are independently selected from hydrogen, alkyl groups of one to six carbon atoms, or aryl groups of 6 to 10 carbon atoms.

5. The pneumatic agricultural or industrial tire of claim 1, wherein said benzothiazole accelerator is selected from mercaptobenzothiazole, benzothiazyl disulfide, 2-mercapto-monoalkylbenzothiazoles, such as 2-mercapto-4-methylbenzothiazole, 2-mercapto-4-ethylbenzothiazole, 2-mercapto-5-methylbenzothiazole, 2-mercapto-5-ethylbenzothiazole, 2-mercapto-6-methylbenzothiazole, and 2-mercapto-6-ethylbenzothiazole; 2-mercapto-dialkylbenzothiazoles, such as 2-mercapto-4,5-dimethylbenzothiazole and 2-mercapto-4,5-diethylbenzothiazole; 2-mercapto-monoarylbenzothiazoles, such as 2-mercapto-4-phenylbenzothiazole, 2-mercapto-5-phenylbenzothiazole, and 2-mercapto-6-phenylbenzothiazole; bis(monoalkylbenzothiazolyl-2)-disulfides, such as bis(4-methylbenzothiazolyl-2)-disulfide, bis(4-ethylbenzothiazolyl-2)-disulfide, bis(5-methylbenzothiazolyl-2)-disulfide, bis(5-ethylbenzothiazolyl-2)-disulfide, bis(6-

methylbenzothiazolyl-2)-disulfide, and bis(6-ethylbenzothiazolyl-2)-disulfide;
bis(dialkylbenzothiazolyl-2)-disulfides, such as bis(4,5-dimethylbenzothiazolyl-2)-
disulfide and bis(4,5-diethylbenzothiazolyl-2)-disulfide; and
bis(monoarylbenzothiazolyl-2)-disulfides, such as bis(4-phenylbenzothiazolyl-2)-
5 disulfide, bis(5-phenylbenzothiazolyl-2)-disulfide, and bis(6-phenylbenzothiazolyl-2)-
disulfide.

6. The pneumatic agricultural or industrial tire of claim 1, wherein said
benzothiazole accelerator is benzothiazyl disulfide or mercaptobenzothiazole.

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7. The pneumatic agricultural or industrial tire of claim 1, wherein said
textile cord is selected from the group consisting of polyester, aramid, nylon, and
rayon.

8. The pneumatic agricultural or industrial tire of claim 1, wherein textile
15 cord is polyester.

9. The pneumatic agricultural or industrial tire of claim 8, wherein said
polyester cord is formed by first obtaining a cord through twisting together a plurality
20 of polyester yarns;

secondly treating the cord with an aqueous emulsion comprising a polyepoxide;
and

thirdly treating the cord with an aqueous RFL emulsion comprising a
resorcinol-formaldehyde resin, a styrene-butadiene copolymer latex, a vinylpyridine-
25 styrene-butadiene terpolymer latex, and a blocked isocyanate.

10. The pneumatic agricultural or industrial tire of claim 9, wherein said
polyepoxide is selected from the group consisting of reaction products between an
aliphatic polyalcohol and a halohydrin, reaction products between an aromatic
30 polyalcohol and a halohydrin, and reaction products between a novolac phenolic resin
or a novolac resorcinol resin and a halohydrin.

11. The pneumatic agricultural or industrial tire of claim 9, wherein said polyepoxide is present in said aqueous emulsion in a concentration range of from about 1 to about 5 percent by weight.

5 12. The pneumatic agricultural or industrial tire of claim 9, wherein said polyepoxide is present on said polyester cord in a range of from about 0.3 to about 0.7 percent by weight.

10 13. The pneumatic agricultural or industrial tire of claim 1, wherein the tire is cured from the green state at a temperature of from about 150 to about 190°C.

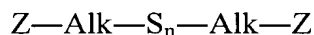
14. The pneumatic agricultural or industrial tire of claim 1, wherein the tire is cured from the green state at a temperature of from about 160 to about 180°C.

15 15. The pneumatic agricultural or industrial tire of claim 13, where the tire is cured for a time range from about 40 to about 150 minutes.

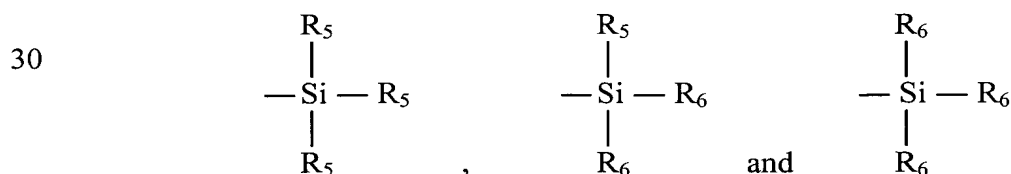
16. The agricultural or industrial tire of claim 13, wherein the tire is cured for time ranging from about 60 to about 120 minutes.

20 17. The pneumatic agricultural or industrial tire of claim 1, wherein said at least one component is selected from carcass plies, belts, and bead inserts.

25 18. The pneumatic agricultural or industrial tire of claim 1, wherein said rubber composition further comprises an sulfur containing compound of the formula



in which Z is selected from the group consisting of



where R₅ is an alkyl group of 1 to 4 carbon atoms, cyclohexyl or phenyl; R₆ is alkoxy of 1 to 8 carbon atoms, or cycloalkoxy of 5 to 8 carbon atoms; Alk is a divalent hydrocarbon of 1 to 18 carbon atoms and n is from 2 to 8.

5 19. The pneumatic agricultural or industrial tire of claim 1, wherein said filler comprises from about 10 to about 100 phr of carbon black and from about 10 to about 30 phr of silica.

10 20. The pneumatic agricultural or industrial tire of claim 1, wherein said rubber composition further comprises at least one methylene donor and at least one methylene acceptor.